

II. EXPERIMENTAL

DOPPLER

DIRECTION

FINDER

WILLIAM E. DUMKE

WB5TCO

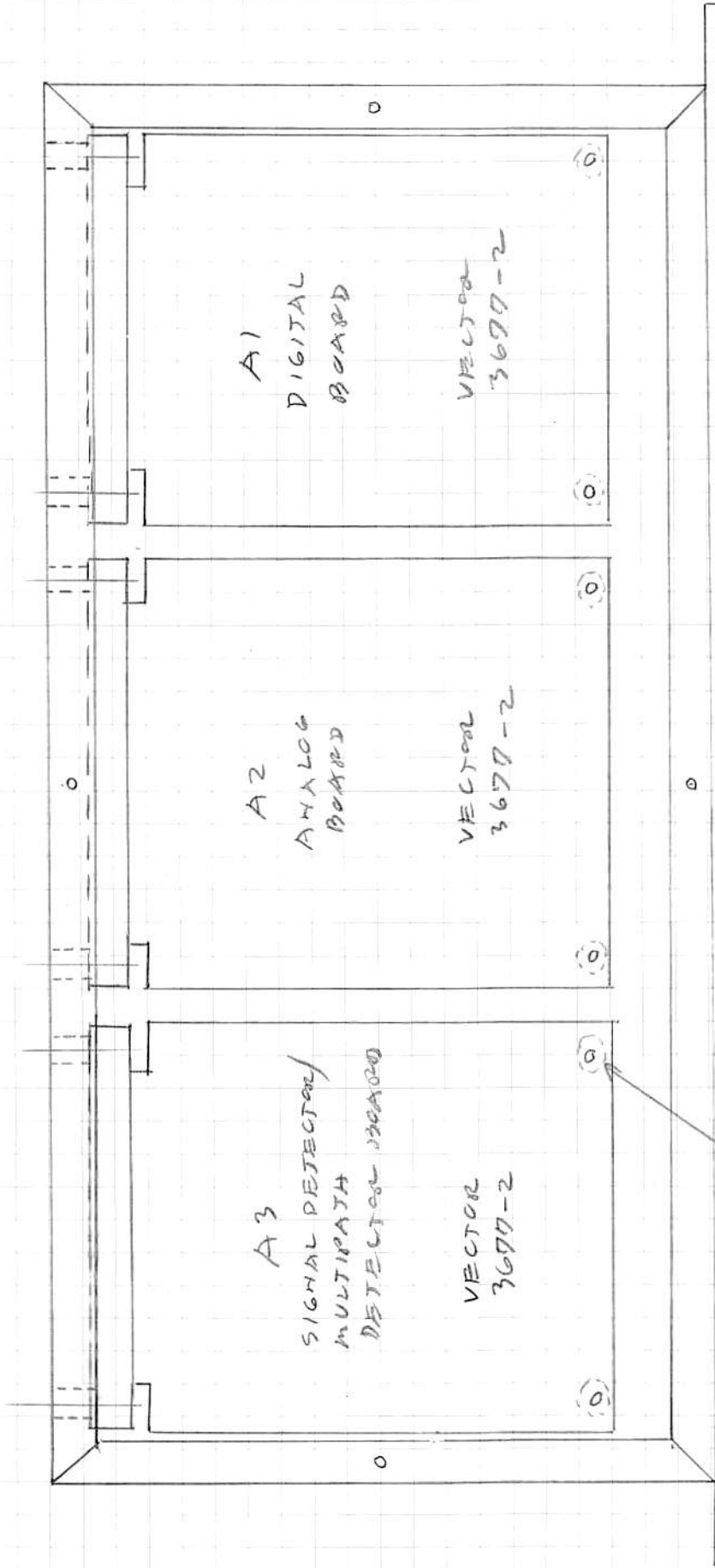
6/15/89

WILLIAM E. DUMKE
509 FIFTEENTH AVE.
GREEN BAY, WI 54303

[illegible]

W.B.5 TCO 4/30/89

BUD CHASSIS BASE = 8" X 17" X 3" AC-412 ALUMINUM
WITH 8" X 17" BPA-1520 BOTTOM PLATE



FRONT PANEL 3 1/2" X 19" RACK PANEL
BUD SURFACE SHIELD
SFA-1832

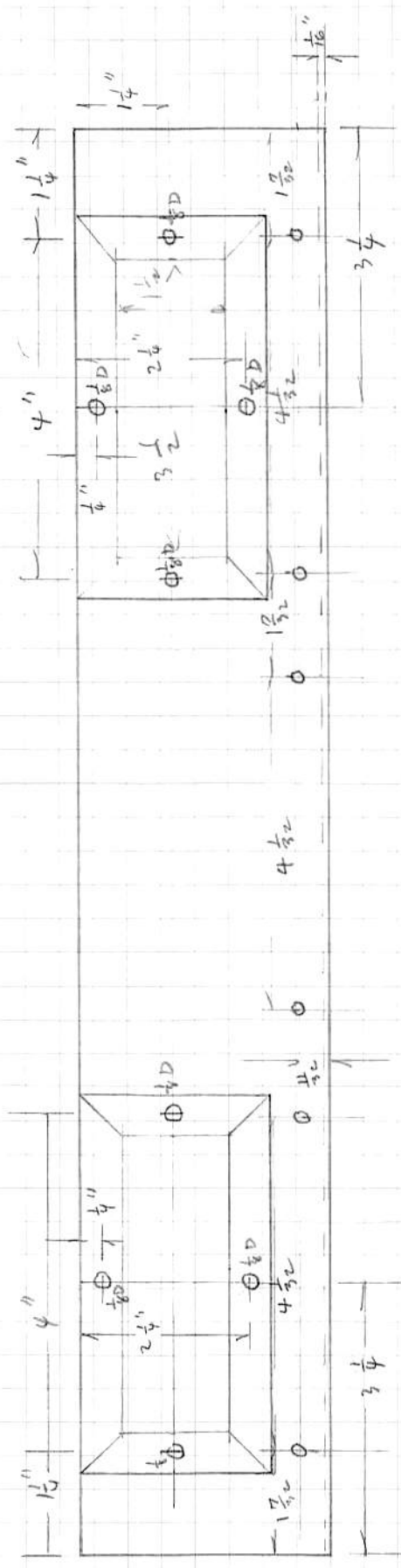
1/4" HIGH X 1/4" DIA
4-40 THD SPACER

TOP VIEW EXPERIMENTAL UNIT

W.C.D. WBS TC 4/30/79

$$\begin{array}{r} 4 \frac{1}{32} \\ 4 \frac{1}{32} \\ \hline 4 \frac{2}{32} \\ 12 \frac{2}{32} \\ \hline 16 \frac{2}{32} \\ - 12 \frac{2}{32} \\ \hline 4 \frac{2}{32} \\ 1 \frac{29}{32} \\ \hline 4 \frac{29}{32} \end{array}$$

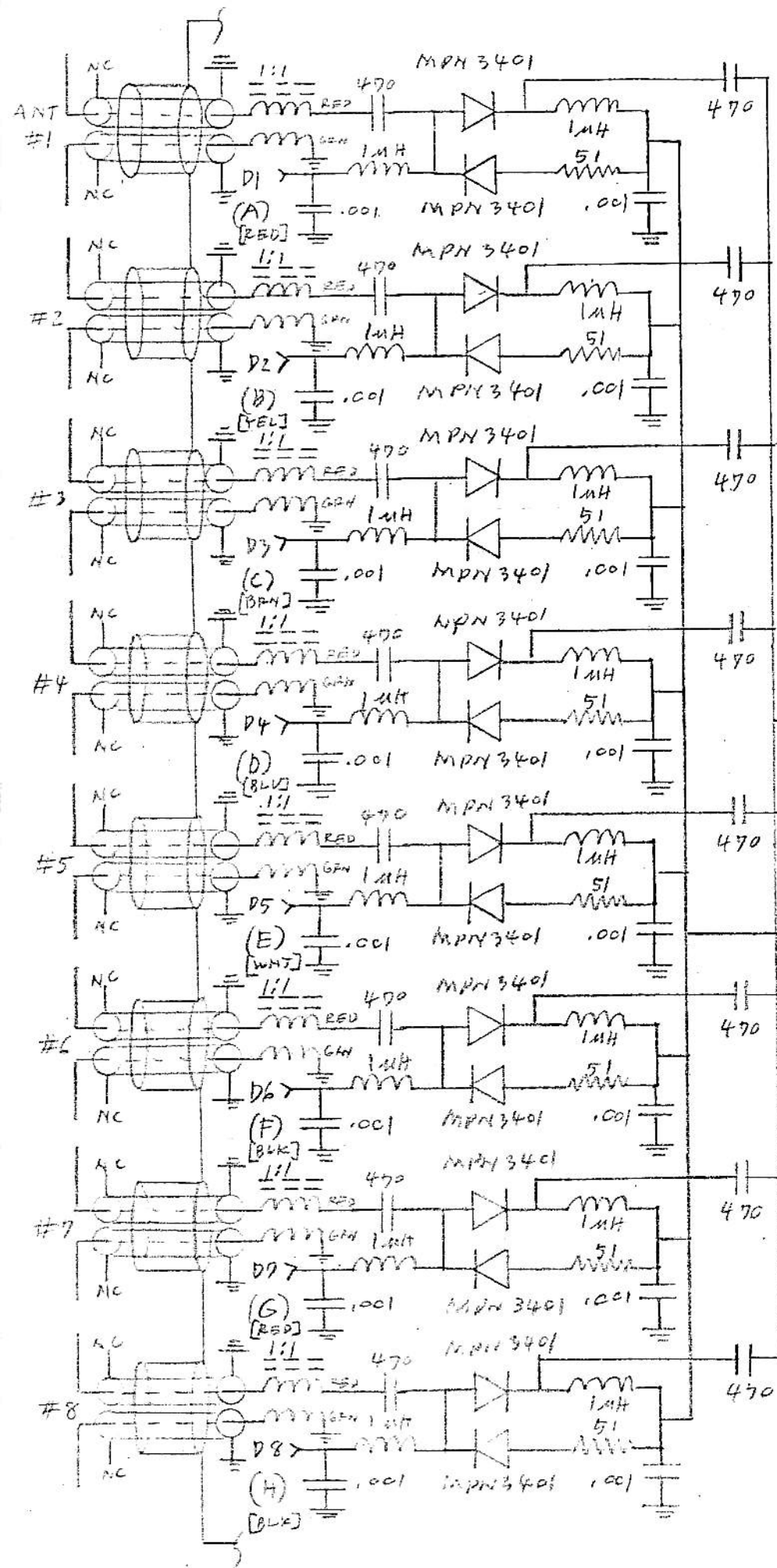
$$? = \frac{1}{32} + \frac{1}{16} = \frac{1}{32} + \frac{2}{32} = \frac{3}{32}$$



EXPERIMENTAL
PEAR PANEL
LAYOUT
WITH FILTER
ASSEMBLIES

$$\frac{20}{20} \times \frac{20}{20} = 1$$

William E. Dumke
509 Hannah Place, NW
Socorro, NM 87801



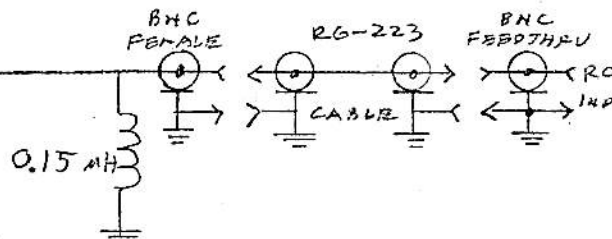
W. S. D.

12/3/78 WB5TCO

ANTENNA SWITCH

NOTES

1. (ANTENNA CABLE, PIN #5)
2. [WIRE COLOR CODES]
3. ADR HIGH = ON
4. 1:1 BALUNS WOUND WITH 9 TURNS ($\approx 3"$) OF MAGNET WIRE SUPPLY CO #B23221, BIFILAR WIRE (COLOR CODED RED AND GREEN) ON STACK #57-0184 5N CORE.



<+2.5VDC (I) [RED]

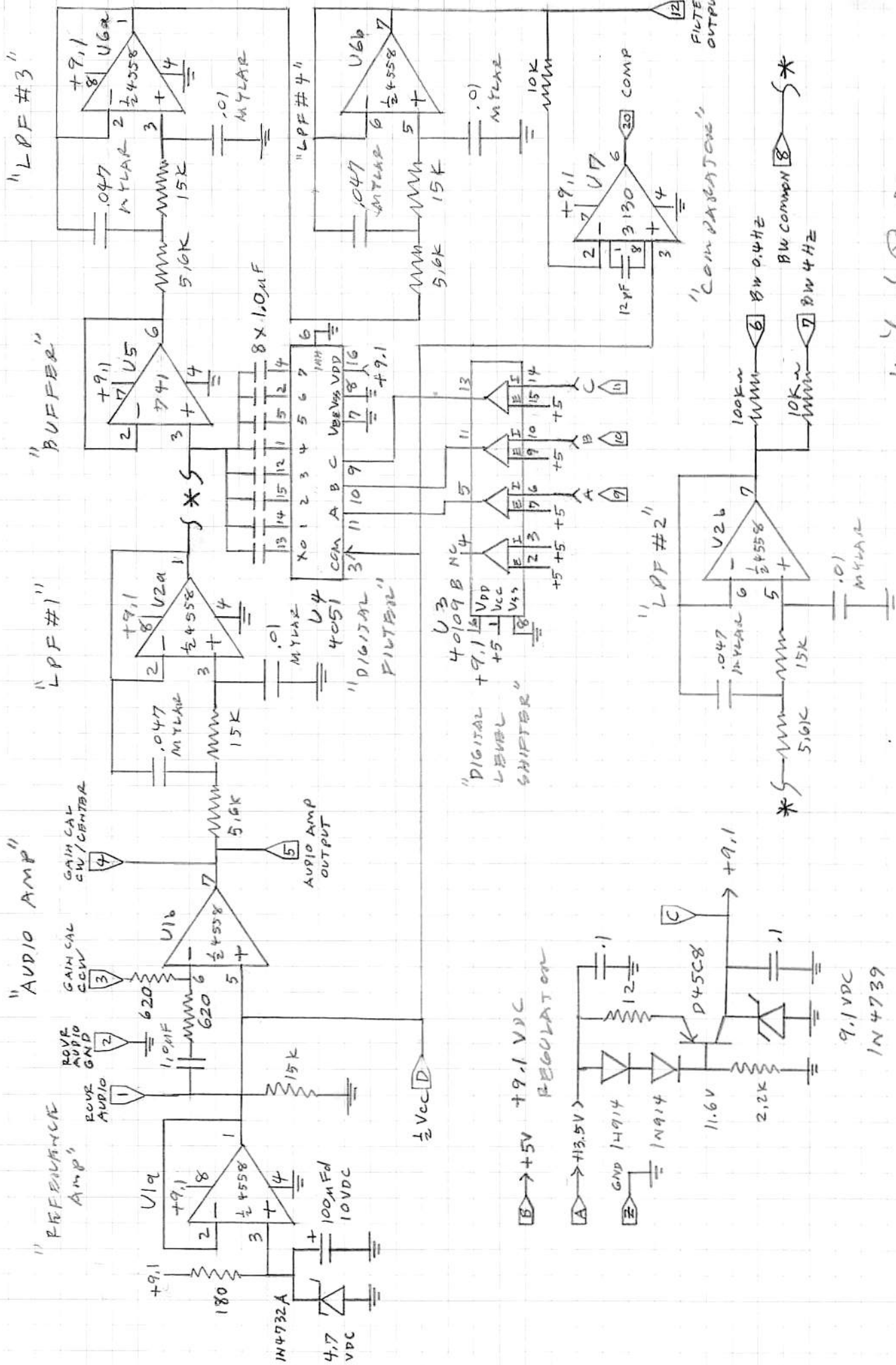
<GND (J) [BLUE]

5. ANTENNA CABLES ALL RG-58A/U.

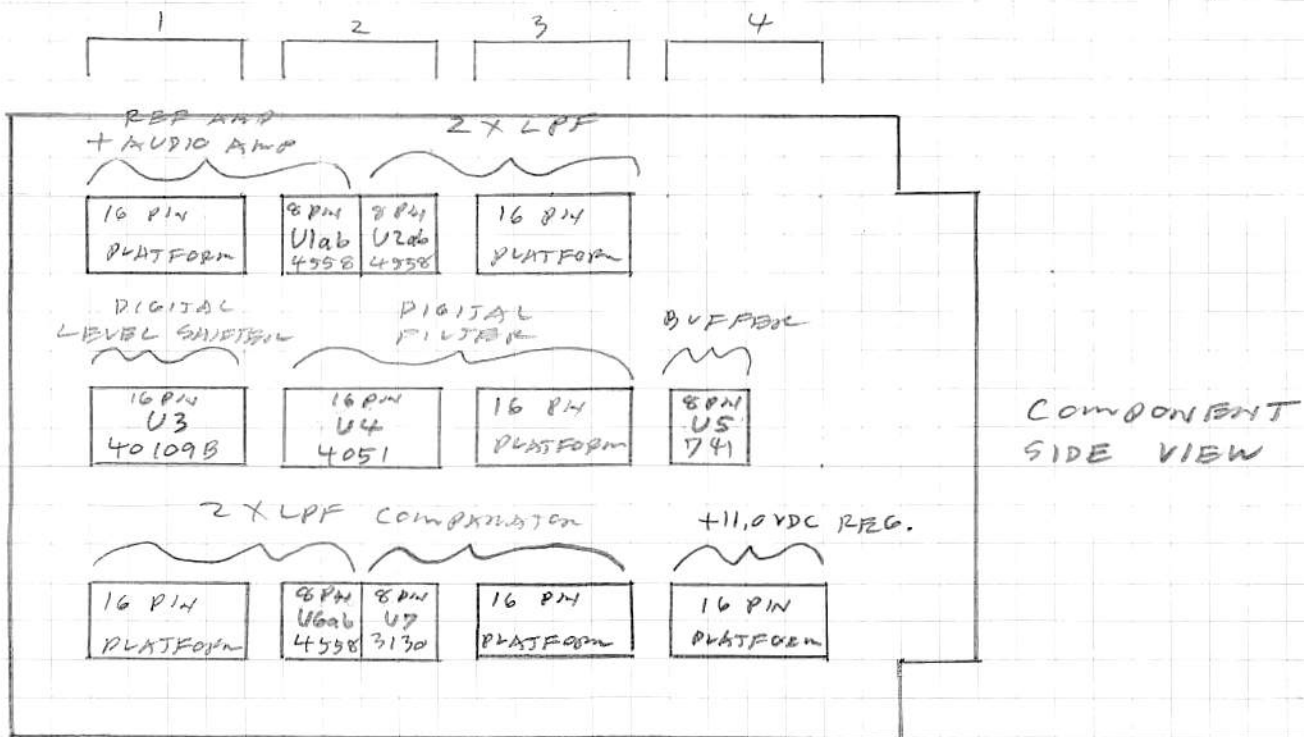
6. 1uH CHOKES PARALLEL RESONANT @ 243 MHz

7. 0.15mH CHOKES PARALLEL RESONANT @ 243 MHz WITH 7pF

REV. 4/24/79 W.S.D.



Wish - 4. Page 2
 11/26/98 WB5TCO
 ANALOG (A2)
 REV. 12/19/78 W.S.D.



W. B. T. Co.
11/19/78 WB5TCO
ANALOG BOARD
LAYOUT

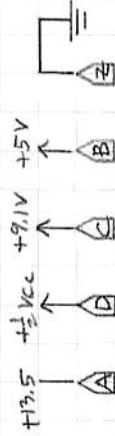
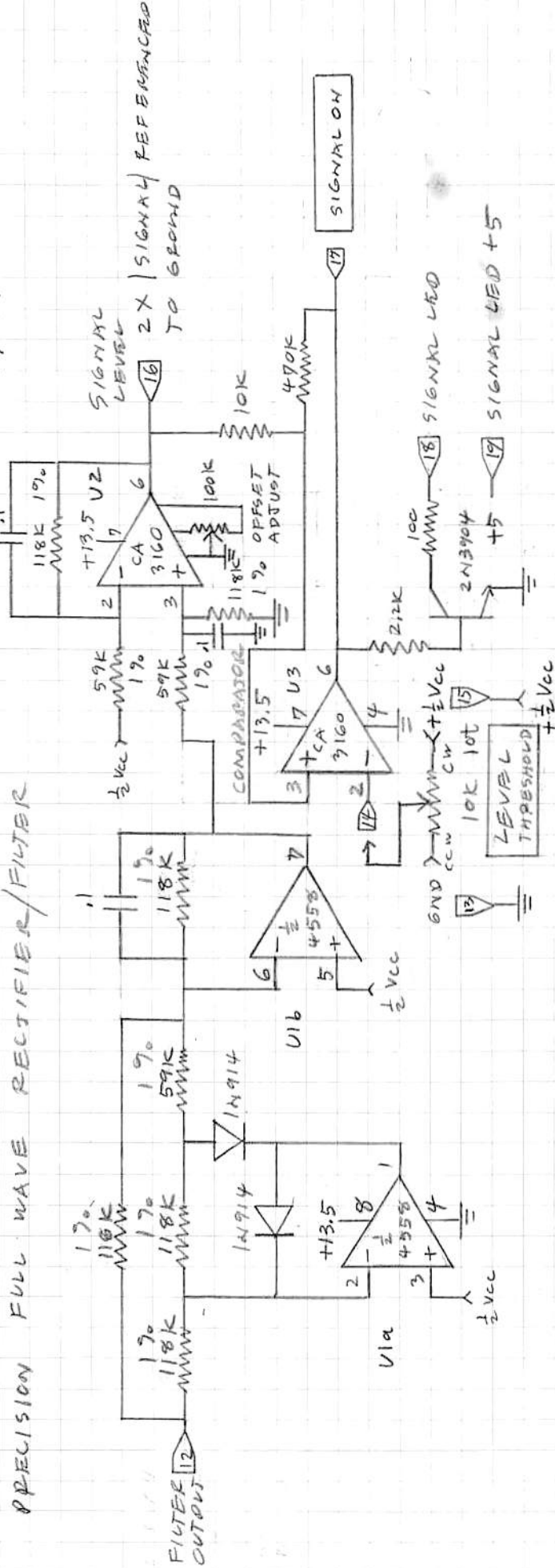
REV. 5/2/79 W. B. T. Co.

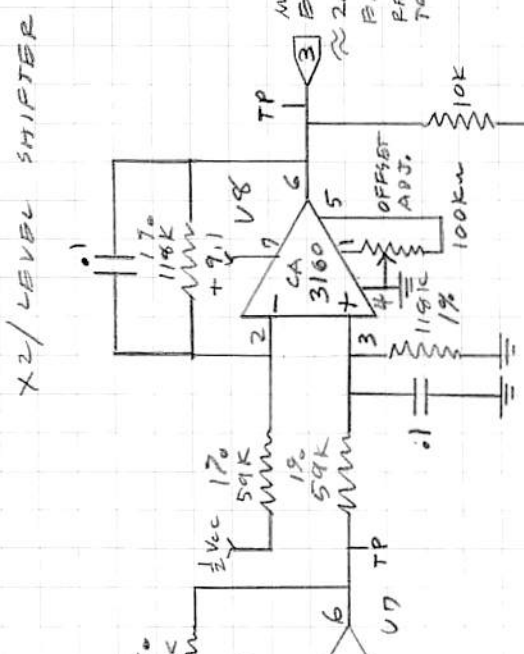
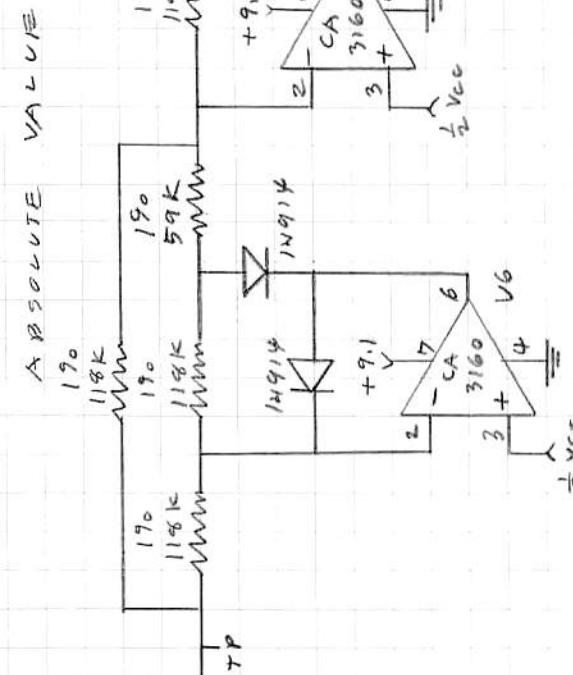
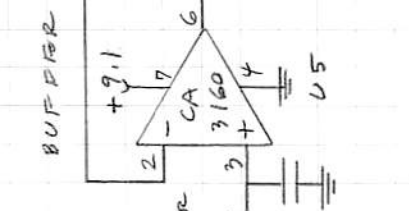
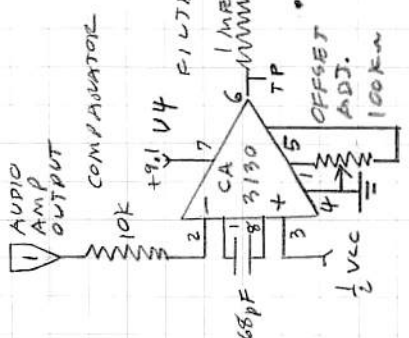
SIGNAL DETECTOR

1/2 (A3)

PRECISION FULL WAVE RECTIFIER/FILTER

Wm - 4 Pm
WAS TCO
11/22/78

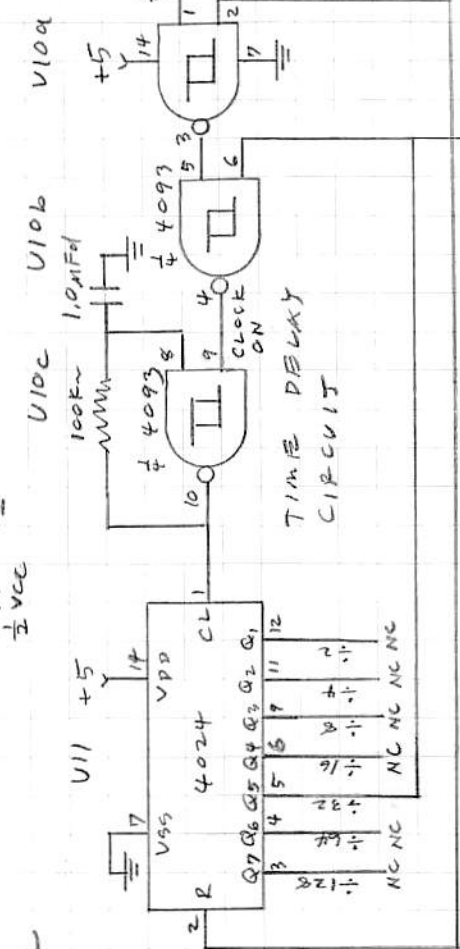




MULTIPATH DETECTOR

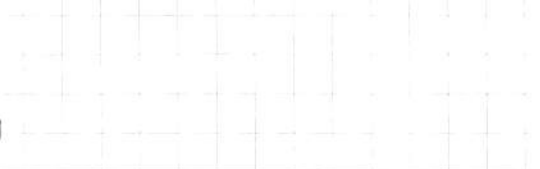
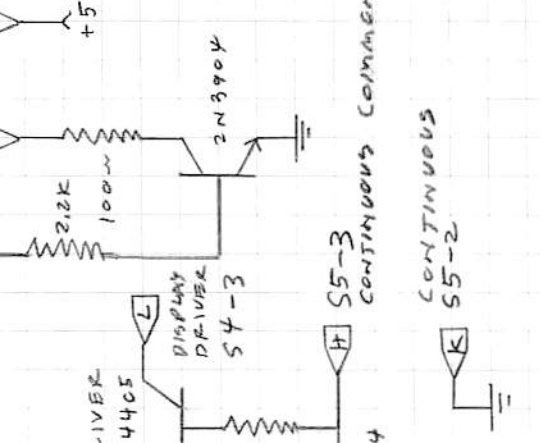
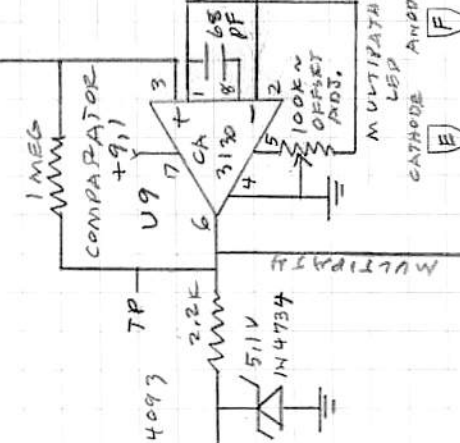
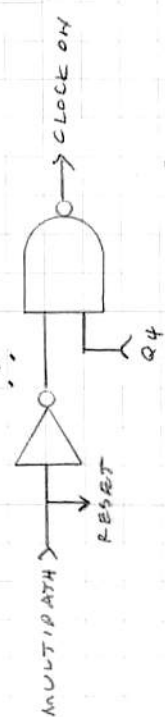
1/2 (A3)

with S. Datta
WB5700
11/22/78

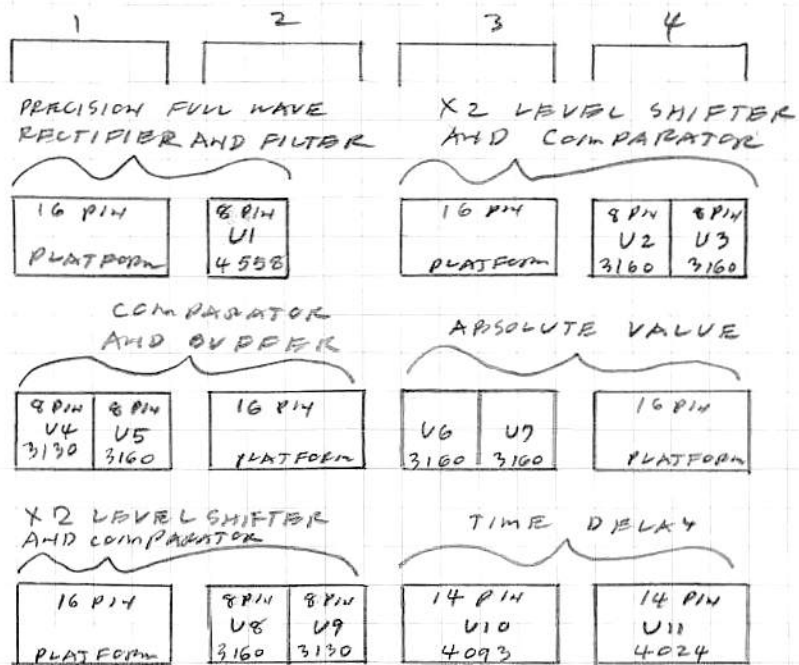


TIME DELAY CIRCUIT TRUTH TABLE

MULTIPATH	Q4	CLOCK ON	RESET
0	0	1	0
0	1	0	0
1	0	1	1
1	1	1	1



COMPONENT SIDE VIEW

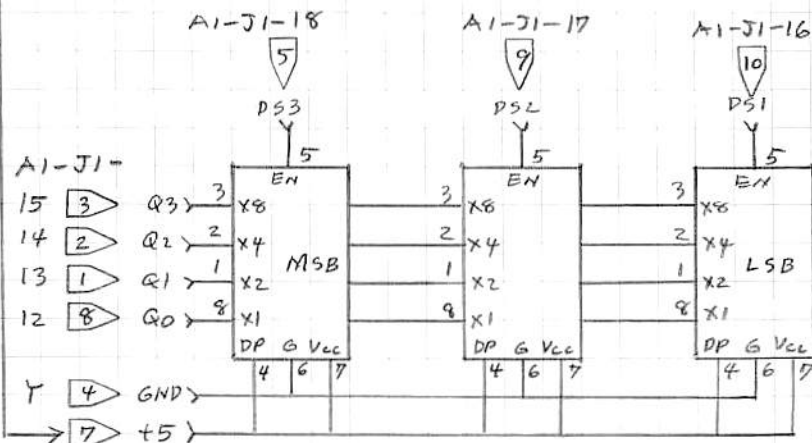
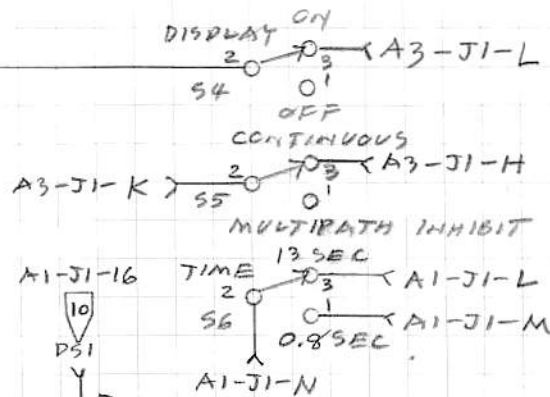
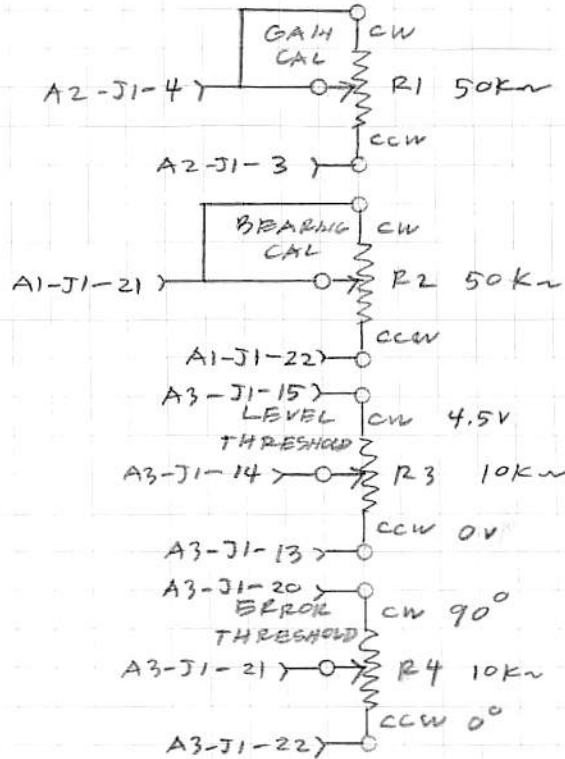
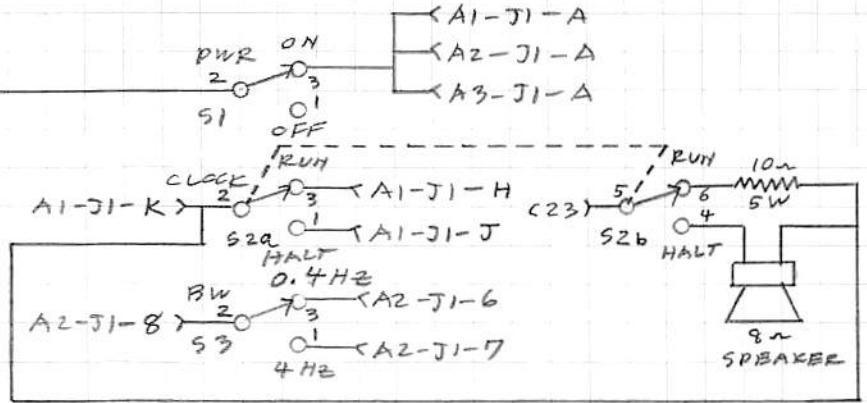
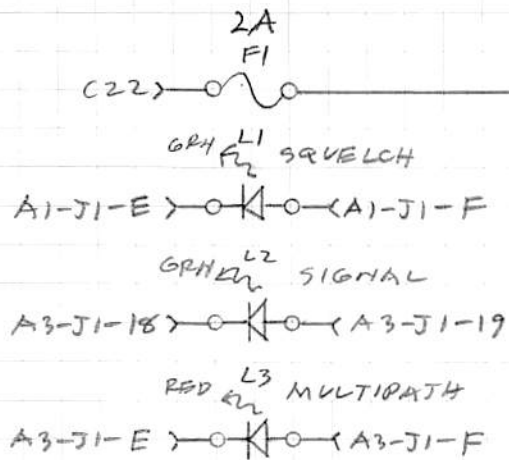


SIGNAL DETECTOR/MULTIPATH DETECTOR
BOARD LAYOUT

W. S. D
WBSTCO 11/18/78

FRONT PANEL ASSEMBLY

m. G. P. WB5TCO
11/26/78



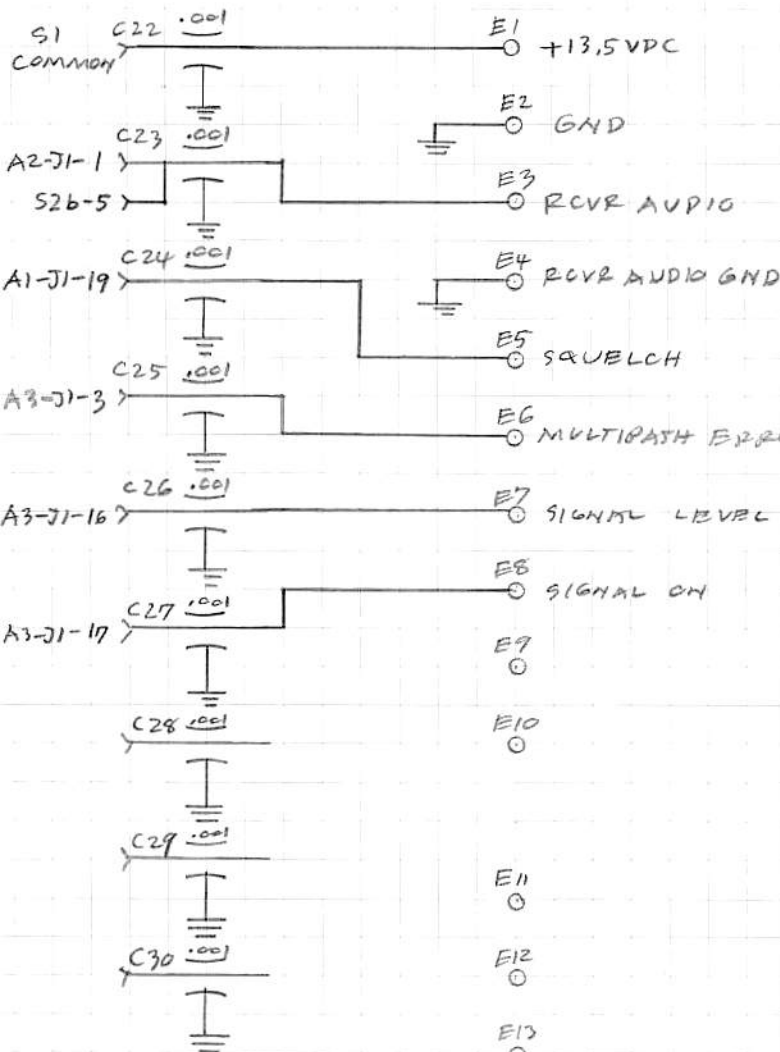
3-HP 5082-7300
DISPLAY (A4)

W. G. D. WB5TCO

11/26/78

REV. 12/8/78 W.S.D.

REAR PANEL FILTER ASSEMBLY



E11

E12

E13

E14

E15

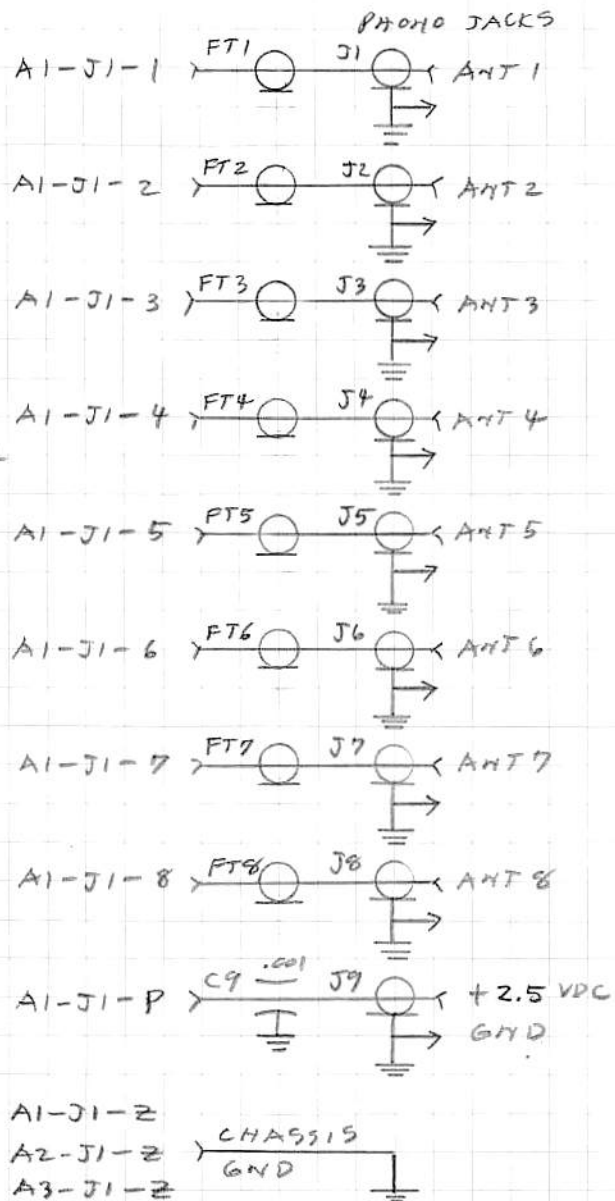
E16

E17

E18

E19

E20



COLOR CODE STANDARDS

W. G. D. WB5TCO
11/11/78
REV. 12/3/78 W. G. D.

BLACK	GROUND
RED	+13.8VDC, +9.1VDC, $\frac{1}{2}V_{CC}$ (ANALOG SUPPLIES)
YELLOW	+5V (DIGITAL SUPPLIES)
GREEN	DIGITAL (5VPP SWING)
BLUE	ANTENNA DIGITAL
WHITE	ANALOG

11/11/98

REV. 12/8/78 W.C.D.

ASSEMBLY A1 DIGITAL

PIN	NAME	SOURCE
1	D1	C1
2	D2	C2
3	D3	C3
4	D4	C4
5	D5	C5
6	D6	C6
7	D7	C7
8	D8	C8
9	A	A2-J1-9
10	B	A2-J1-10
11	C	A2-J1-11
12	Q0	A4-P1-8
13	Q1	A4-P1-1
14	Q2	A4-P1-2
15	Q3	A4-P1-3
16	DS1	A4-P1-10
17	DS2	A4-P1-9
18	DS3	A4-P1-5
19	SQUELCH INPUT	C24
20	COMPARATOR INPUT	A2-J1-20
21	BEARING CAL CW/CENTER	R2 - CW/CENTER
22	BEARING CLK CCW	R2 - CCW
A	+13.5 INPUT	S1-3
B	+5 OUTPUT	A2-J1-B, A3-J1-B
C	+9.1 INPUT	A2-J1-C
D	$\frac{1}{2}$ VCC INPUT	A2-J1-D
E	SQUELCH LED	L1-CATHODE
F	LED +5	L1-ANODE
H	CLOCK RUN	S2-3
J	CLOCK HALT	S2-1
K	CLOCK COMMON	S2-2
L	TIME 13 SEC	S6-3
M	TIME 0.8 SEC	S6-1
N	TIME COMMON	S6-2
P	ANT +2.5 VDC	C9
R	N.C.	A2-J1-R
S	N.C.	A2-J1-S
T	N.C.	A2-J1-T
U		
V		
W		
X		
Y	DISPLAY GND	A4-P1-4
Z	GROUND	CHASSIS GND

11/10/78

REV. 12/8/78.

ASSEMBLY A2 ANALOG

PIN	NAME	SOURCE
1	RCVR AUDIO INPUT	C23
2	RCVR AUDIO GND	N.C.
3	GAIN CAL CCW	R1 - CCW
4	GAIN CAL CW/CENTER	R1 - CW/CENTER
5	AUDIO AMP OUTPUT	A3-J1-1
6	BW 0.4 HZ	S3-3
7	BW 4 HZ	S3-1
8	BW COMMON	S3-2
9	A	A1-J1-9
10	B	A1-J1-10
11	C	A1-J1-11
12	FILTER OUTPUT	A3-J1-12
13		
14		
15		
16		
17		
18		
19		
20	COMPARATOR OUTPUT	A1-J1-20
21		
22		
A	+13.5 INPUT	S1-3
B	+5 INPUT	A1-J1-B
C	+9.1 OUTPUT	A1-J1-C, A3-J1-C
D	$\frac{1}{2}$ VCC OUTPUT	A1-J1-D, A3-J1-D
E		
F		
H		
J		
K		
L		
M		
N		
P		
R	N.C.	A1-J1-R
S	N.C.	A1-J1-S
T	N.C.	A1-J1-T
U		
V		
W		
X		
Y		
Z	GROUND	CHASSIS GND

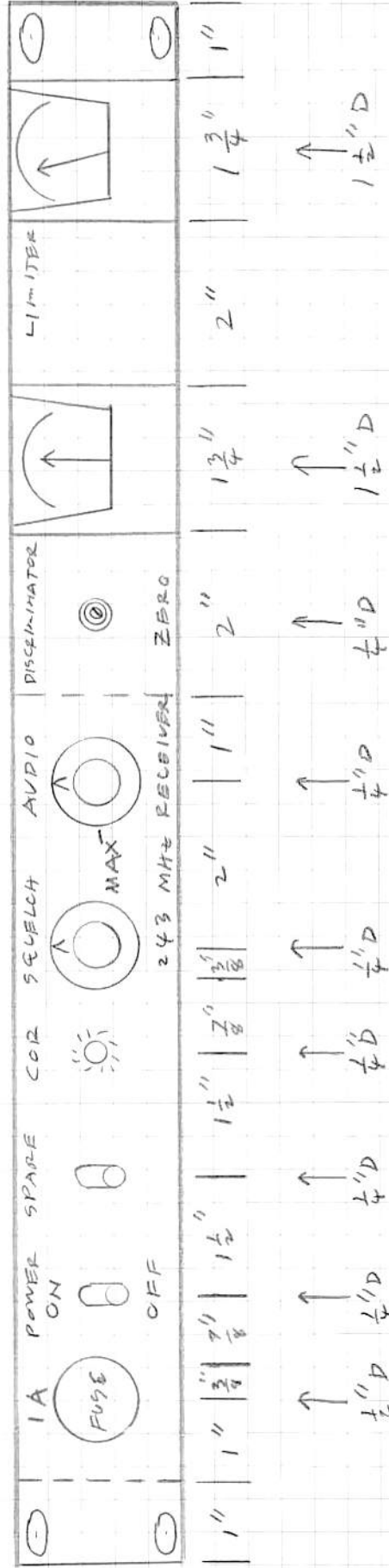
ASSEMBLY A3 SIGNAL DETECTOR/MULTIPATH DETECTOR

PIN	NAME	SOURCE
1	AUDIO AMP OUTPUT	A2-J1-5
2		
3	MULTIPATH ERROR	C25
4		
5		
6		
7		
8		
9		
10		
11		
12	FILTER OUTPUT	A2-J1-12
13	LEVEL THRESHOLD CCW	R3-CCW
14	LEVEL THRESHOLD CENTER	R3-CENTER
15	LEVEL THRESHOLD CW	R3-CW
16	SIGNAL LEVEL	C26
17	SIGNAL ON	C27
18	SIGNAL LED	L2-CATHODE
19	LED +5	L2-ANODE
20	ERROR THRESHOLD CW	R4-CW
21	ERROR THRESHOLD CENTER	R4-CENTER
22	ERROR THRESHOLD CCW	R4-CCW
A	+13.5 INPUT	S1-3
B	+5 INPUT	A1-J1-B
C	+9.1 INPUT	A2-J1-C
D	$\frac{1}{2}$ VCC INPUT	A2-J1-D
E	MULTIPATH LED	L3-CATHODE
F	LED +5	L3-ANODE
H	CONTINUOUS	S5-3
J		
K	CONTINUOUS (COMMON)	S5-2
L	DISPLAY DRIVER	S4-3
M		
N		
P		
R		
S		
T		
U		
V		
W		
X		
Y		
Z	GROUND	CHASSIS GND

ASSEMBLY A4 DISPLAY

PIN	NAME	SOURCE	COLOR
1	Q1	A1-J1-13	GRN
2	Q2	A1-J1-14	GRN
3	Q3 MSB	A1-J1-15	GRN
4	GND	A1-J1-Y	BLK
5	DS3	A1-J1-18	GRN
6			
7	+5	S4-2	YEL
8	Q0 LSB	A1-J1-12	GRN
9	DS2	A1-J1-17	GRN
10	DS1	A1-J1-16	GRN
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			
A			
B			
C			
D			
E			
F			
H			
J			
K			
L			
M			
N			
P			
R			
S			
T			
U			
V			
W			
X			
Y			
Z			

1 1/2" X 5 1/4" X 9 1/2" CHASSIS BASE



243 MHz RECEIVER FRONT PANEL LAYOUT

M. C. D. WBS TCO 3/4/79 REV. 3/30/79

DOPPLER PARTS

QUAN.	DESCRIPTION	SOURCE	EACH	TOTAL
2	CINCH 251-22-30-160 EDGE CONN.			
1	236 KHz CRYSTAL			
2	VECTOR 3677-2 DP DIP PLUG BOARD	E.P.	9.86	
1	GRILL CLOTH			
1	10 THERMINKLE BARBED STRIP			
8	STACIROLE 57-0184 5N BALUN COILS			
1	MC 7805CK			
4	.001uFd FEEDTHRU CAPS			
1	14 PIN PLATFORM + COVER (A4)			
1	CHERRY THUMBWHEEL SWITCH			
1	24 PIN DIP SOCKET			
1	14 PIN DIP SOCKET			
1	DOPPLER PIN DIODE SWITCH (OLD ANT.)			
1	BIFILAR WIRE #B232221) MAGNET WIRE SUPPLY CO.			
2	CD4093BE RCA			
1	CD 4011AE NS			
1	SCL 4028BE SSS			
2	SCL 4522BE SSS			
1	4520PC F			
1	MC 14553CP			
1	CD 4030AE NS			
1	CD 4049CN NS			
1	CD 40109BE RCA			
1	CA 3130E			
1	CA 3160E			

POP OVER PARTS

QUANTITY	DESCRIPTION	SOURCE	EACH	TOTAL
1	2N 3904			
9	SWITCHCRAFT JAX 3501FB PHONO JACK	E.B.	.50	4.50
2	AMPHENOL UG-291/U			
4	470pF DISC CAP			
1	.001 μ F DISC CAP			
2	$\frac{5}{8}$ " x $\frac{1}{4}$ " THD RD SPACERS			